Available online at www.sciencedirect.com
ScienceDirect
Journal of Forensic and Legal Medicine 14 (2007) 228–230
JOURNAL OF FORENSIC AND LEGAL MEDICINE
www.elsevier.com/jflm

Case report

Sudden death due to tuberculosis

Anand Menon MD (Assistant Professor) [a], Prateek Rastogi MD (Assistant Professor) [a,*], Urmila Khadilkar MD (Professor) [b]

[a] *Department of Forensic Medicine, Kasturba Medical College, Mangalore, India*
[b] *Department of Pathology, Kasturba Medical College, Mangalore, India*

Received 1 April 2006; accepted 14 June 2006
Available online 18 October 2006

Abstract

Forensic pathologists deal not only with criminal, accidental and suicidal deaths, but also with a wide range of deaths from natural causes. Many of these deaths are sudden, unexpected, clinically unexplained or obscure, even though there need be no criminal element in their causation.

Unnatural deaths have always to be investigated by the police, but very often natural deaths forms the basis of medico legal investigation, if they had occurred suddenly in apparently healthy persons. Often at autopsy these so called unnatural deaths may turn out to be natural and vice versa.

Two cases of sudden death occurring in young individuals under suspicious circumstances are presented. On autopsy they were diagnosed to be secondary to tuberculosis.

Keywords: Sudden death; Tuberculosis; Bronchiectesis

1. Introduction

Some of the most difficult problems in criminal and litigious cases arise not out of gross, rapidly fatal trauma, but in deaths where concurrent natural disease or complications after trauma lead to a fatal outcome. Suspicion usually arises when an individual is found dead, without anyone having witnessed it. Such deaths are labeled as sudden death. WHO defined sudden death as death within 24 h from the onset of symptoms.[1] Under the British system all cases of sudden death which have not been seen by a doctor within 14 days preceding death should be autopsied.[2] In India, a similar system is followed. The very purpose of medico legal autopsy in such deaths is to determine whether poisoning or violence has been in any way responsible for the death.

Sudden deaths are mainly attributed to the cardiovascular system. According to Vij, 45% of sudden deaths are related to the cardiovascular system, 25% to the respiratory system, 20% to the nervous system and 10% due to other causes.[3] According to Gonzales, diseases of the respiratory system accounts for 23% of all sudden deaths.[4] The main cause of death in respiratory system is fatal hemoptysis, often resulting in inhalation of blood into the lungs. The bleeding is secondary to bronchogenic carcinoma, tuberculosis, lung abscess and bronchiectasis among others.[5]

Acute deaths due to tuberculosis are uncommon; however since it is such a common disease in India its causal relationship with sudden death should be kept in mind. Pulmonary tuberculosis is treatable but deaths due to its complications are on the rise due to its association with HIV infection or evolution of multi drug resistant Tubercle bacilli strains. Such deaths assume medico legal importance from an association with deceased occupation and its relationship with old trauma.[6]

In this paper we present two cases of sudden deaths autopsied at Govt. Wenlock Hospital, Mangalore, which on examination were found out to be due to complications of pulmonary tuberculosis.

* Corresponding author. Tel.: +09448501376.
E-mail address: rastogiprateek@rediffmail.com (P. Rastogi).

1353-1131X/$ - see front matter © 2006 Elsevier Ltd and AFP. All rights reserved.
doi:10.1016/j.jcfm.2006.06.027

2. Case one

On 19.6.2005, an unknown male aged about 30 yr. was found dead at KSRTC bus stand, Mangalore, at 1.30 p.m. Autopsy was conducted on same day between 5.30 and 8.00 p.m.

2.1. External findings

Deceased was moderately built and poorly nourished, measuring 163 cm in length and weighing 37 kg. Front of lower abdomen and back showed dark pigmentation. No injuries were present anywhere on the body.

2.2. Internal findings

Pleura and peritoneum showed multiple, small, yellowish white tubercles.

Both lungs and liver on cut section showed multiple, small, yellowish white tubercles filled with a cheesy substance. The mesentery and anterior surface of stomach wall was also studded with similar tubercles (Fig. 1).

Brain and kidneys were congested.

All other organs were intact and healthy.

2.3. Histopathology report

Lungs and liver showed patchy foci of necrotizing inflammation, involving the alveoli and bronchioles. Numerous microabcesses with occasional epithelioid cells were present in the parenchyma.

Ziehl Neelsen stain was strongly positive for tubercle bacilli in the necrotic focus.

2.4. Cause of death

Disseminated miliary tuberculosis.

3. Case two

On 11.7.2005 an unknown male aged about 30 yr. was found dead at Mangalore railway station at 11.30 a.m. Autopsy was conducted between 3.30 and 4.45 p.m. on the same day.

3.1. External findings

Deceased was moderately built and poorly nourished, measuring 169 cm in length and weighing 34 kg. Vitiligous patches were present over back of both wrists and left forearm. No injuries were present anywhere on the body.

3.2. Internal findings

Pus was present in the left pleural cavity along with bilateral pleural erosions.

Both lungs on cut section showed numerous cavities filled with pus. Left lower lobe showed a ruptured abcess. Bronchioles were hardened and dilated (Fig. 2).

Liver and kidneys were congested.

Brain was oedematous. Spleen was pulpy.

All other organs were intact and healthy.

3.3. Histopathology report

Bronchiectasis secondary to pulmonary tuberculosis.

Ziehl Neelsen stain was strongly positive for tubercle bacilli.

3.4. Cause of death

Bronchiectasis secondary to pulmonary tuberculosis.

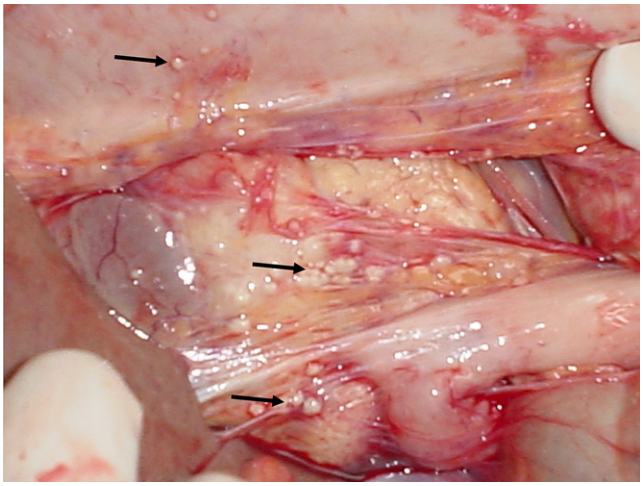

Fig. 1. Miliary tubercles on stomach and intestinal wall.

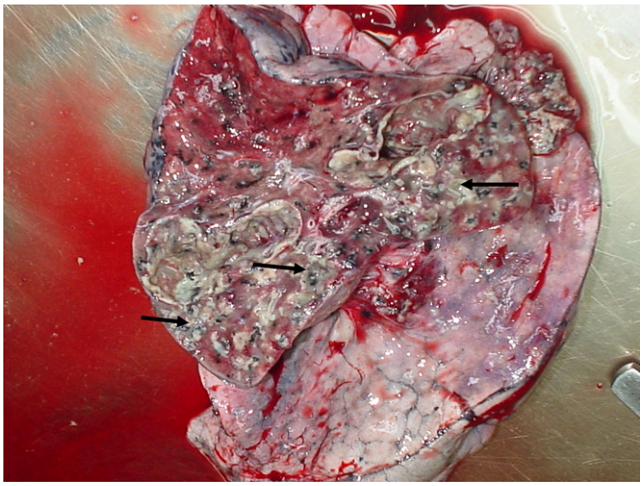

Fig. 2. Abcesses filled with pus and dilated, hardened bronchioles.

4. Discussion

In most cases of sudden unexpected deaths, the first thing which comes to mind is almost always a cardiovascular pathology. But based on statistics this is the diagnosis only in 45% of sudden deaths. The remaining is shared by other systems and the respiratory system alone accounts for 25% of the total.

Tuberculosis is one of the most common infectious diseases in India. Deaths due to its complications are rare but reported. Tuberculosis is a chronic bacterial granulomatous infection caused by an acid fast bacterium mycobacterium tuberculosis.[7]

Hassan DN and Hanna AJY reported 168 cases of sudden death due to tuberculosis out of 7910 autopsies conducted by them. Tuberculous cavitation was the principle finding in majority (126) of the cases followed by miliary tuberculosis in 17 cases.[8] Camps et al. reported a case of haemoptysis due to rupture of blood vessels inside a tubercular cavity, resulting in sudden death.[6] In another case a 20 yr old male died of bilateral pulmonary miliary tuberculosis complicated by pneumonia.[8]

Miliary tuberculosis is due to lymphohaematogenous spread of tuberculous infection from primary focus. It may be systemic or may involve individual organs.[7] Miliary lesions are millet seed sized (1 mm in diameter), yellowish white, firm areas with microscopically visible caseous necrosis.[9] Bobrowitz ID conducted a study on 21 deaths due to tuberculosis (undiagnosed till autopsy). Of these cases 11 were due to pulmonary tuberculosis and 10 due to miliary tuberculosis.[10] Dada et al. reported sudden death of a 25 yr old male due to myocardial spread of tuberculosis. This man was apparently healthy and died while playing soccer.[11] Dickens and Chan reported a case of sudden death in a 71 yr old Chinese male, which on autopsy was diagnosed as miliary tuberculosis with tubercular myocarditis.[12]

Bronchiectesis is yet another complication of tuberculosis resulting in sudden death. It presents as chronic cough with purulent expectoration. It is defined as the abnormal and irreversible dilatation of the distal bronchi and bronchioles, filled with muco-pus. Pleura is fibrotic, hardened and adhered to the chest wall.[7,9]

Even though the gradual control of tuberculosis is progressing today in most countries, disability and death still exists. Tuberculosis takes a chronic, exhausting, cachexic course, but most scientists do not consider it a principle cause of sudden death. Sudden deaths due to tuberculosis are mainly attributed to hemorrhage or to the virulence of the bacilli.[13] Camps et al. attribute tuberculosis deaths to the inflammatory lesions caused by bacilli rather than to hemorrhage.[6]

Suspicious sudden tuberculosis deaths constitute a public health problem in most of the developing countries. Most of the cases pose a danger to the community, both during life as well as after death. Rarely can they raise a medico legal issue as they can be easily diagnosed and treated. Tuberculosis is a treatable disease but its fatality is attributed to its association with HIV infection and to immunocompromised state of patients with immunosuppressive therapy. Thus the frequency of undiagnosed tuberculosis as a cause of death in spite of its decreased incidence is stressed.

References

1. Knight B. The pathology of sudden death. In: Saukko P, Knight B, editors. *Knight's forensic pathology*. 3rd ed. London: Arnold; 2004. p. 492.
2. Craig CH. Death due to sudden or unexpected natural causes. In: Mant AK, editor. *Taylor's principles and practice of medical jurisprudence*. 13th ed. London: Churchill Livingstone; 1984. p. 111.
3. Vij K. Sudden and unexpected deaths*Text book of forensic medicine and toxicology*. 3rd ed. New Delhi: Elsevier; 2005. p. 149.
4. Di Maio VJ, Di Maio DJ. Death due to natural diseases*Forensic pathology*. 2nd ed. London: CRC Press; 2001. p. 74.
5. Guhraj PV. Sudden death. In: Guhraj PV, Chandran MR, editors. *Forensic medicine*. 2nd ed. Chennai: Orient Longman Publishers; 2003. p. 74. 82.
6. Gradhwohl RBH. Unexpected deaths due to natural disease. In: Camps FE, Robinson AE, Lucas BG, editors. *Gradhwohl's legal medicine*. 3rd ed. Bristol: John Wright and Sons; 1976. p. 221. 235–37.
7. Mohan H. The respiratory system*Textbook of pathology*. 3rd ed. Delhi: Jaypee Brothers Medical Publishers (P) Ltd.; 1998. p. 158. 168, 545–47.
8. Hassan DN, Hanna AJY. Tuberculosis and sudden death in Baghdad. *The Amer J Forensic Med Pathol* 1984;**5**(2):169–74.
9. Kobzik L. The lung. In: Cotran RS, Kumar V, Collins T, editors. *Pathologic basis of disease*. 6th ed. Philadelphia: WB Saunders Company; 2000. p. 716. 725–26.
10. Bobrowitz ID. Active tuberculosis undiagnosed until autopsy. *The Amer J Med* 1982;**72**(4):650–8.
11. Dada MA, Lazarus NG, Kharsany ABM, Sturm AW. Sudden death caused by myocardial tuberculosis. *The Amer J Forensic Med Pathol* 2000;**21**(4):385–8.
12. Chan ACL, Dickens P. Tuberculous myocarditis presenting as sudden death. *Forensic Sci Int* 1992;**57**(1):45–50.
13. Spitz WU, Fisher RS*Medico legal investigation of death*. 2nd ed. USA: Charles C Thomas; 1980. p. 110.